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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/555,722	11/07/2005	Haijun Wu	H0678.7002US00	2054
23628	7590	10/17/2007	EXAMINER	
WOLF GREENFIELD & SACKS, P.C. 600 ATLANTIC AVENUE BOSTON, MA 02210-2206			HUSSAIN, IMAD	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/555,722	WU ET AL.
	Examiner	Art Unit
	Imad Hussain	4117

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  
 If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  
 Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 04 April 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-17 is/are rejected.  
 7) Claim(s) 1,3,4,9 and 12 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
     Paper No(s)/Mail Date 10/25/2006.

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_.

**DETAILED ACTION**

***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. PCT/CN2004/00156, filed on May 7, 2003.

***Specification***

2. The disclosure is objected to because of the following informalities: In paragraph 3, "server also obtain" should read "server also obtains". In paragraph 5, the listed components should be rewritten in the form of: "comprising the steps of establishing...; when..., sending; at the same time,... determining". In paragraph 6, "the access server have" should read "the access server has". Appropriate correction is required.

***Claim Objections***

3. Claim 1 is objected to because of the following informality: The claims twice reference "the network access device" which lacks antecedent basis. For the purposes of examination, the first of these clauses will be interpreted as "a network access device". Appropriate correction is required.

4. Claims 3 and 4 are objected to because of the following informality: The claims recites "the MAC address" which lacks antecedent basis. While a MAC address is a component of claim 2, claims 3 and 4, as written, do not dependant on claim 2. Appropriate correction is required.

5. Claim 4 is objected to because of the following informality: The claim references “the access server” which lacks antecedent basis. For the purposes of examination, the clause will be interpreted as “an access server.”
6. Claim 9 is objected to because of the following informality: In paragraphs 2 and 3, “indexes” should read “indices”.
7. Claim 12 is objected to because of the following informality: The claim cites “the message” which lacks antecedent basis.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-5, 7-9, 11, 12, and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Christensen et al (US 2004/0141468), hereafter referred to as Christensen.

Regarding claim 1, Christensen teaches *a method for transferring subscriber location*

*information in a network communication system, comprising:*

*determining the subscriber location information [“source MAC address”] when a subscriber accesses the network [paragraph 29, sentences 2-3];*

*the network access device converting [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3] the accessed subscriber location information into a code [“virtual MAC address”, paragraph 29, sentence 4] in the encoding format [“48 bits”, paragraph 31, sentence 5 and Figure 8] of the corresponding field [“MAC address field”] in a packet to be sent outwards by the subscriber [paragraph 29, sentence 4];*

*the network access device receiving the packet sent from the subscriber, replacing the corresponding field in the packet with the determined subscriber location information code [“virtual MAC address”, paragraph 29, sentences 3-4], and transferring the packet in the network communication system [Figure 7].*

Regarding claim 2, Christensen teaches that *said accessed subscriber location information comprises:*

*network access device [“access node”] ID [“address domain”] in the network accessed by the subscriber, slot number of the subscriber interface board [“ADSL Line number”] in the network access device where the subscriber accesses, port number [“PVC”] of the subscriber interface board where the subscriber accesses, and MAC (Media Access Control) address information [“MAC address”] of the subscriber terminal [Figure 8 and paragraphs 32-33].*

Regarding claim 3, Christensen teaches that *said step comprises:*

*the network access device converting [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3] the accessed subscriber location information into a code [“virtual MAC address”, paragraph 29, sentence 4] in the encoding format [“48 bits”, paragraph*

31, sentence 5 and Figure 8] of the MAC address carried in the packet to be sent outwards by the subscriber [paragraph 29, sentences 3-4].

Regarding claim 4, Christensen teaches that *said step comprises*:

*the network access device receiving the packet sent from the subscriber* [paragraph 29, sentence 4];  
*the network access device replacing the source MAC address information carried in the packet sent from the subscriber with the determined subscriber location information code* [paragraph 29, sentence 4], *and sending the packet to the access server* [“Broadband Remote Access Server (BRAS)”, Figure 7].

Regarding claim 5, Christensen teaches that *said network access device* [“access node”] *is a broadband* [“Asymmetric DSL”] *access device in a broadband network* [paragraph 29, sentence 2] and that *said access server* *is a BRAS* [paragraph 30, sentence 1].

Regarding claim 7, Christensen teaches a method *further comprising*:

*replacing the destination MAC address in the packet, from the network-side port of the network access device, addressed to the subscriber with the MAC address of the subscriber terminal* [paragraph 29, sentence 4];  
*and sending the packet to the subscriber terminal* [“Station... using ADSL”, paragraph 29, sentence 2] [Figure 7].

Regarding claim 8, Christensen teaches that *said step comprises*:

*the network access device encoding converting* [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3] *the subscriber location information into a 48-bit subscriber location information code* [“virtual MAC address”, paragraph 31] *in the encoding format of MAC address* [Figure 8 and paragraph 31].

Regarding claim 9, Christensen teaches that *said subscriber location information code comprises*:

*one or more indexes of broadband access device* [“access node”] *number* [“address domain”], *device frame number* [“index field”], *slot number* [“ADSL line number”], *and port number* [“PVC”] *that are required to identify the subscriber location information* [paragraphs 31-35];

*one or more indexes of MAC address, priority, protocol encapsulation mode, subscriber type, and PVC (Permanent Virtual Connection) ID of the subscriber terminal that describe subscriber characteristics* [paragraph 34].

Regarding claim 11, Christensen teaches that *said subscriber location information encoding comprises*:

*mapping the subscriber location information to the subscriber location information code through direct mapping* [paragraph 25, last sentence].

Regarding claim 12, the claim comprises the same limitations as claims 3 and 4. The same rationale for rejection is applicable.

Regarding claim 14, Christensen teaches *a method for converting MAC address, comprising the steps of:*

*a network access device generating an MAC address from an MAC address resource pool* [paragraph 9];  
*and replacing the source MAC address in a packet from a subscriber with said generated MAC address* [paragraph 29, sentences 3-4].

Regarding claim 15, Christensen teaches that *said generated MAC address is unique* [paragraph 22, last two sentences].

Regarding claim 16, Christensen teaches that *said step further comprises the step of:*  
*generating the MAC address according to at least one of network access device* [“access node”] *ID* [“address domain”] *in the network accessed by the subscriber, slot number of the subscriber interface board* [“ADSL Line number”] *in the network access device where the subscriber accesses, port number* [“PVC”] *of the subscriber interface board where the subscriber accesses* [Figure 8 and paragraphs 32-33].

Regarding claim 17, Christensen teaches a method *further comprising:*

*replacing the destination MAC address in the packet, from the network-side port of the network access device, addressed to the subscriber with the MAC address of the subscriber terminal [paragraph 29, sentences 3-4] and sending said packet to the subscriber terminal* [“Station... using ADSL”, paragraph 29, sentence 2] [Figure 7].

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christensen in view of Rai et al (US 6675208, hereafter Rai).

Regarding claim 6, Christensen teaches the method of claim 5, as discussed above. Christensen further teaches a method *comprising configuring a correspondence* [“mapping”] *between the subscriber location information and the subscriber location information code in the broadband* [“ADSL”] *access device* [Christensen, paragraph 29, sentences 2-3].

Christensen does not explicitly disclose that this correspondence step also occurs *in the broadband access server or a Radius Server (remote authentication server)*.

However, Rai teaches a method of configuring a correspondence [“registering”] for subscriber location information [“detail subscriber service profile information”] and a subscriber

location information code [“information about a network to which a foreign agent belongs” and “security credentials”] in a Radius Server [“Home Registration Server”, Rai, Figure 15 and Column 20, lines 1-21].

Christensen and Rai are analogous subject matter in the same field of endeavor as both cover registering subscribers in broadband networks.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the Radius Server teaching of Rai in the system of Christensen. One of ordinary skill in the art would have been motivated to modify the system of Christensen because in doing so, the system would allow for greater categorization of connection messages and separation of duties [Rai, Column 2, lines 36-45].

12. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christensen in view of Edward Reuss (US 20030165230 A1, hereafter Reuss).

Regarding claim 10, Christensen teaches the method of claim 8, as discussed above. Christensen further teaches that *said code comprises*:

*24 bits, content determined by network access device manufacturers* [“access node-unique MAC address bits”]; *index of MAC address* [“Index”]; *index of network access device ID* [“Virtual MAC domain/address domain”]; *index of the access port number* [“PVC”]; *and index of slot number* [“ADSL line number”] *of the subscriber interface board where the subscriber accesses* [Figure 8 and paragraphs 31-35].

Christensen does not particularly teach that the index is 5 bits, the address domain is 7 bits, the PVC is 7 bits and the line number is 5 bits.

However, Christensen states that his layout is only one of many possible embodiments [Christensen: paragraph 21] and represents a “trade-off between flexibility and traceability” [Christensen: paragraph 31]. Christensen further states that the Unit Specific Use field (which, in the example embodiment, comprises the Index, PVC, and Line fields) may be altered “for different network purposes” or “as needed” and provides the example of combining two each 4-bit fields (PVC and Line [Christensen: Figure 8]) into one field of 8 bits, as such enabling 256 possible address values (e.g. for providing sufficient addresses for at least 100 ports) [Christensen: paragraph 35].

Reuss teaches utilizing the 24-bit extension field to generate up to  $2^{24}$  unit MAC addresses, wherein the MAC address length corresponds to the desirable amount of uniquely identifiable MAC addresses [Reuss: paragraph 51].

Hence, given the suggestions of Christensen to select a field length within a range of possible field lengths (e.g. not exceeding the total 48-bit total) based on or corresponding to a predetermined desirable amount of identifiable unique addresses or identifiable unique values obtainable as a result of that selected length, and the suggestions of Reuss for using a extension field providing up to a maximum of 24-bits available for usage, to selectively predetermine the particular length of the MAC address using the extension field bits for creating a corresponding desirable amount of identifiable unique addresses. It would have been obvious to select particular field lengths for the index field, address domain field, PVC field and line number field

corresponding with a the desirable amount of identifiable unique addresses/identifier value needed.

Christensen and Reuss are analogous subject matter in the same field of endeavor as both cover the generation of MAC addresses.

One of ordinary skill in the art would be motivated to utilize the suggestions mentioned above to generate, particularly, an index of 5 bits, and address domain of 7 bits, a PVC of 7 bits and the line number of 5 bits, as claimed because in doing so would allow more users per access node ( $2^5$  instead of  $2^4$  line numbers) but fewer MAC addresses per PVC ( $2^5$  instead of  $2^8$  index numbers) [Christensen: paragraph 33].

Regarding claim 13, the claim comprises the same limitations as claims 9 and 10. The same rationale for rejection is applicable.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Videlock et al. US 5179555 *High speed data compression and transmission for wide area network* (Describes a system that receives data, encodes data, transmits coded data, decodes data, and then transmits decoded data).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Imad Hussain whose telephone number is 571-270-3628. The examiner can normally be reached on Monday through Thursday from 0730 to 1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beatriz Prieto can be reached on 571-272-3902. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/IH/  
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